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Lawrence Livermore Laboratory

U.S. ENERGY FLOW IN 1978

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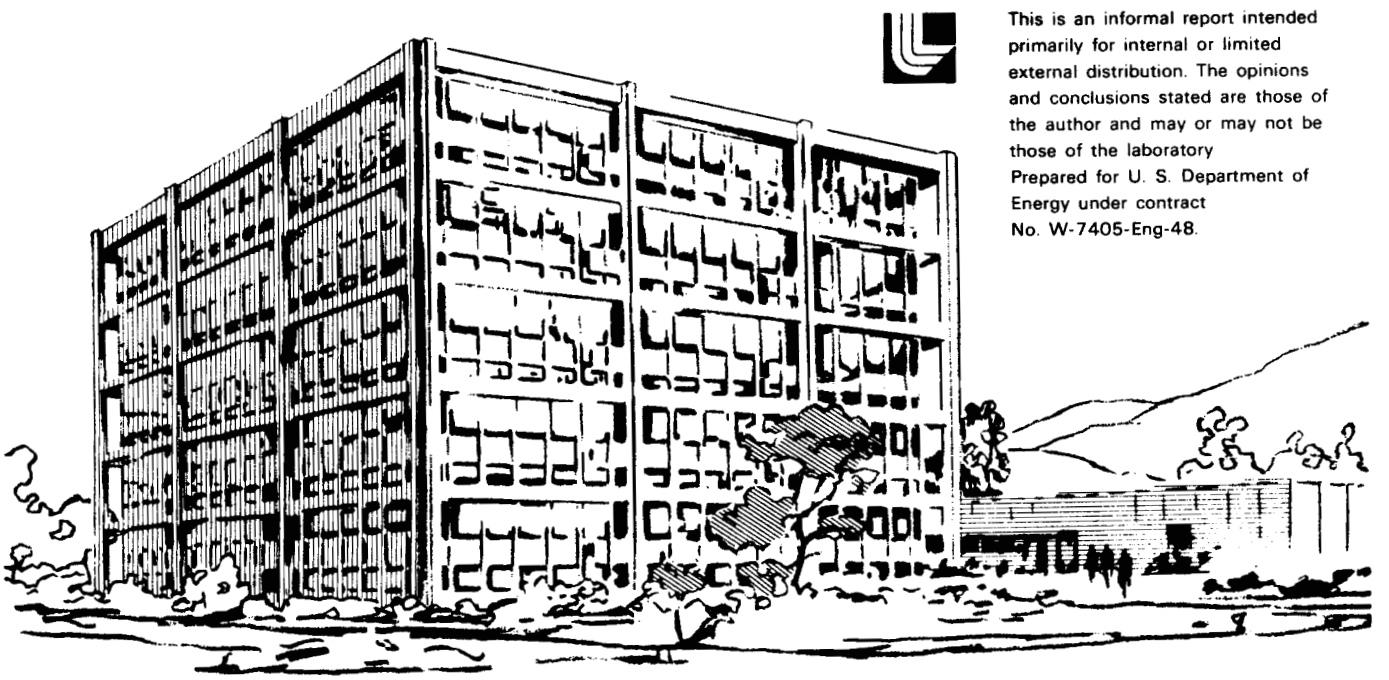

U.S. ENERGY FLOW IN 1978

ABSTRACT

An energy flow diagram for the U.S. for 1978 is presented. The most important feature is a greater than 6% decrease in net energy imports.

U.S. ENERGY FLOW IN 1978

It is useful and interesting to chart the flow of energy in the United States. These charts provide a large amount of information in compact form.[1] On the charts, the width of any unit is proportional to the energy flowing in that unit.

Based on our methods and data supplied in the Department of Energy's "Monthly Energy Review," April 1979, and "Energy Data Reports" DOE/EIA-0109/12(78), we have constructed the U.S. Energy Flow Chart for 1978 (Figure 1). In the figure, all energy is expressed in "quads" (10^{15}Btu).

Some significant differences between 1977 and 1978 are:

- Total energy use increased 1.8%.
- Oil imports decreased to 17.4 quads, more than 7% below 1977.
- Coal and natural gas remained more or less constant.
- By our reckoning, the industrial sector remains unique in that its energy use decreased somewhat due to conservation efforts.
- Delivered nuclear power increased by 8%, supplying one eighth of all electricity.
- A trend toward electrification continued with distributed electrical energy increasing by 3.9%.

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1) The first charts prepared by these methods were those of A. L. Austin, LLL Report UCID-16022 (1972).

Not shown in the chart is one encouraging trend. While both energy use and gross national product increased, the energy per GNP ratio declined, continuing a trend started in 1971. The lower this ratio is, the more efficiently energy is used in the economy. This ratio now stands at 56.3 thousand Btu per 1972 dollar, down 2% from 1977.

Some approximate conversion factors are given in the appendix.

U.S. ENERGY FLOW - 1978

(PRIMARY RESOURCE CONSUMPTION 78.0 QUADS)

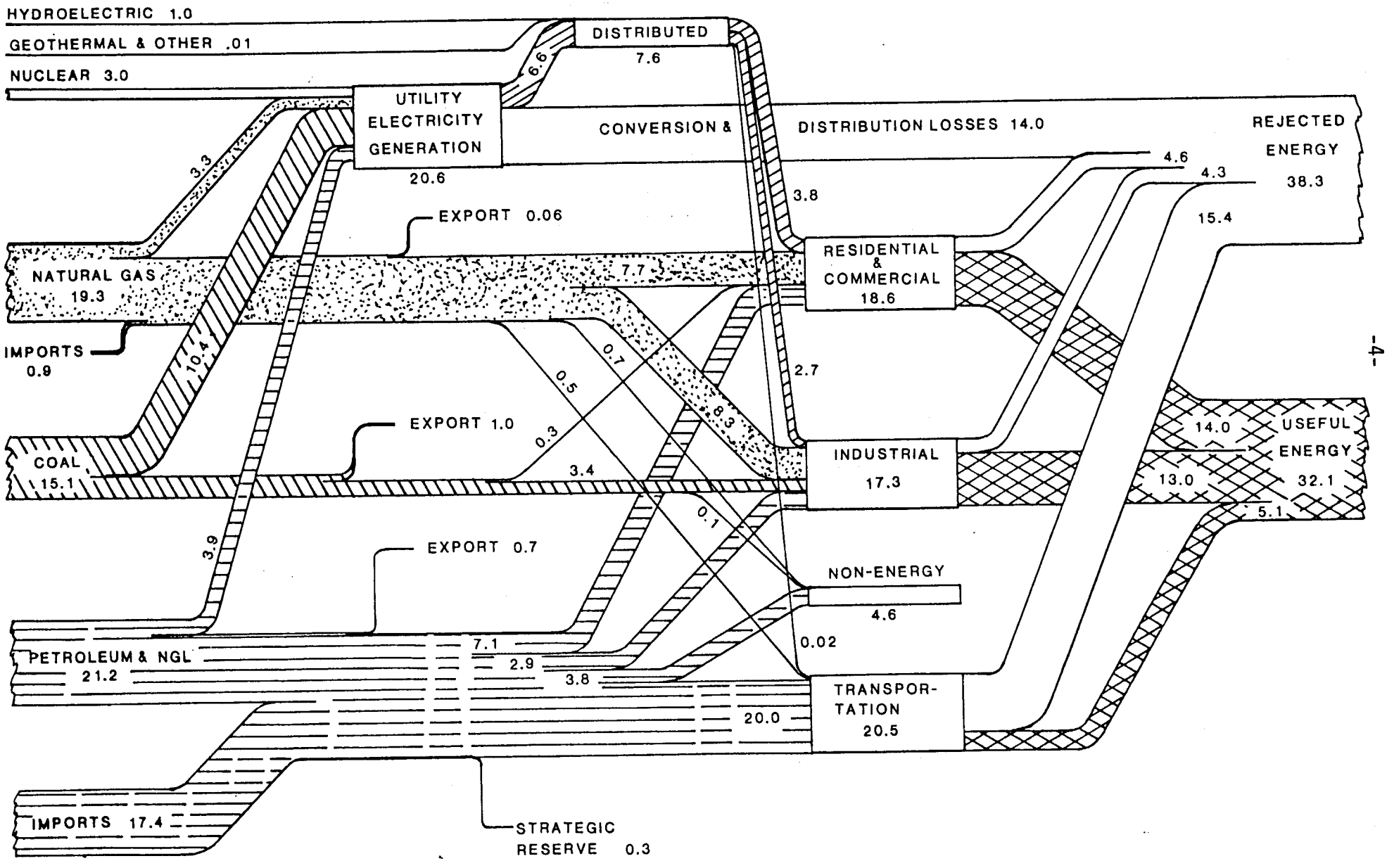

FIGURE 1

APPENDIX: CONVERSION FACTORS

The energy content of fuels varies. Some approximate, rounded conversion factors, useful for estimation, are given below.

Fuel	Energy Content (Btu)
Short ton of coal	22,500,000
Barrel (42 gallons) of crude oil	5,800,000
Cubic foot of natural gas	1,000
Kilowatt hour of electricity	3,400
Fossil fuel to produce one kilowatt hour of electricity	10,400

More detailed conversion factors are given in the Department of Energy "Monthly Energy Review."

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